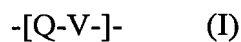


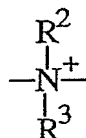
1. Linear polyammonium-polysiloxane copolymers containing the repeating unit

5



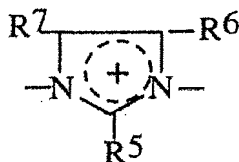
in which Q is selected from the group consisting of

10

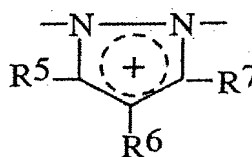


a quaternized imidazole unit of the structure

15

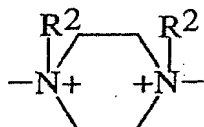


a quaternized pyrazole unit of the structure



20

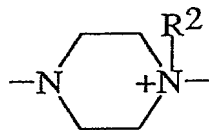
a diquaternized piperazine unit of the structure



a monoquaternized piperazine unit of the structure

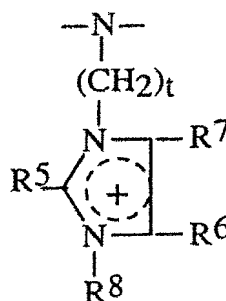


a monoquaternized piperazine unit of the structure



a monoquaternized unit of the structure

5



10

15

in which R^2 is a monovalent, straight-chain, cyclic or branched, saturated, unsaturated or aromatic hydrocarbon radical having up to 100 carbon atoms, which may contain one or more groups selected from -O-, -NH-, -C(O)- and -C(S)-, and which may if desired be substituted by one or more substituents selected from the group consisting of a hydroxyl group, an unsubstituted or substituted heterocyclic group preferably containing one or more nitrogen atoms, amino, alkylamino, dialkylamino, ammonium, polyether radicals and polyetherester radicals, and, if there are two or more groups -CONR²-, they may be identical or different,

20

R^3 has the definition of R^2 , it being possible for R^2 and R^3 to be identical or different, or

R^2 and R^3 together with the positively charged nitrogen atom form a five- to seven-membered heterocycle, which if desired may additionally contain one or more nitrogen, oxygen and/or sulfur atoms,

5

R^5 , R^6 and R^7 can be identical or different and are selected from the group consisting of hydrogen, halogen, hydroxyl group, nitro group, cyano group, thiol group, carboxyl group, alkyl group, monohydroxyalkyl group, polyhydroxyalkyl group, thioalkyl group, cyanoalkyl group, alkoxy group, acyl group, acetyloxy group, cycloalkyl group, aryl group, alkylaryl group, and groups of the type $-NHR^W$, in which R^W is hydrogen, alkyl group, monohydroxyalkyl group, polyhydroxyalkyl group, acetyl group or ureido group, and pairs of adjacent radicals R^5 , R^6 and R^7 may, with the carbon atoms bonding them to the heterocycle, form aromatic five- to seven-membered rings, and

10

R^8 has the definition of R^2 , it being possible for R^8 and R^2 to be identical or different,

15

Q not bonding to a carbonyl carbon atom,

V represents at least one group V^1 and at least one group V^2

in which

20

V^2 is selected from divalent or trivalent, straight-chain, cyclic or branched, saturated, unsaturated or aromatic hydrocarbon radicals having up to 1000 carbon atoms (not including the carbon atoms of the polysiloxane radical Z^2 , defined below) and containing, if desired, one or more groups selected from

25

$-O-$, $-CONH-$,

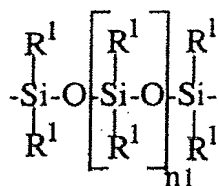
$-CONR^2-$, in which R^2 is as defined above,

30

$-C(O)-$ and $-C(S)-$, and

the radical V^2 may if desired be substituted by one or more hydroxyl groups, and

the radical V^2 contains at least one group $-Z^2-$ of the formula



in which

5

R^1 can be identical or different and is selected from the group consisting of C_1 to C_{22} alkyl, fluoro(C_1 - C_{10})alkyl and C_6 - C_{10} aryl, and $n_1 = 20$ to 1000,

10

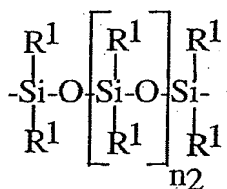
V^1 is selected from dihydric or trihydric, straight-chain, cyclic or branched, saturated, unsaturated or aromatic hydrocarbon radicals having up to 1000 carbon atoms, which if desired may contain one or more groups selected from

-O-, -CONH-,

15

-CONR²-, in which R^2 is as defined above, it being possible for the groups R^2 in the groups V^1 and V^2 to be identical or different,

-C(O)-, -C(S)- and $-Z^1-$, in which $-Z^1-$ is a group of the formula



20

in which

R^1 is as defined above, it being possible for the groups R^1 in the groups V^1 and V^2 to be identical or different, and

25

$n_2 = 0$ to 19,

and the radical V^1 may if desired be substituted by one or more hydroxyl groups,

with the provisos

- that the radical V^1 may not contain any ester group(s) $-C(O)-O-$ and/or $-O-C(O)-$,
- 5 - that the trivalent radicals Q and the trivalent radicals V^1 or V^2 serve exclusively for saturating one another within the linear main chain of the stated polysiloxane copolymers, and
- that in the stated polysiloxane copolymer the molar ratio

10 $V^2/V^1 \neq 1,$

and in which the positive charges resulting from the ammonium groups are neutralized by organic or inorganic acid anions,

15 and the acid addition salts thereof.

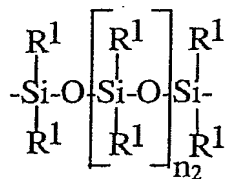
2. Linear polyammonium-polysiloxane copolymers according to claim 1, in which V^2 is a group of the formula



in which Z^2 is as defined above and V^{2*} is a divalent straight-chain cyclic or branched, saturated, unsaturated or aromatic hydrocarbon radical having up to 40 carbon atoms, which if desired may contain one or more groups selected from $-O-$, $-CONH-$, $-CONR^2-$, in which R^2 is as defined above, $-C(O)-$ and $-C(S)-$, and the radical V^{2*} may if desired be substituted by one or more hydroxyl groups.

25

3. Linear polyammonium-polysiloxane copolymers according to claim 1 or 2, in which the group V^1 is selected from divalent, straight-chain, cyclic or branched, saturated, unsaturated or aromatic hydrocarbon radicals having up to 600 carbon atoms, which may if desired contain one or more groups selected from
- 30 $-O-$, $-CONH-$, $-CONR^2-$, in which R^2 is as defined above, $-C(O)-$, $-C(S)-$ and $-Z^1-$, in which $-Z^1-$ is a group of the formula
- 35



in which

R^1 is C_1 to C_3 alkyl, fluoro(C_3 - C_6)alkyl or C_6 aryl, and

n_2 is as defined above.

4. Linear polyammonium-polysiloxane copolymers according to one of claims 1 to 3, in which the molar ratio V^2/V^1 complies with the relationship

$$\text{V}^2/\text{V}^1 < 1.$$

5. Linear polyammonium-polysiloxane copolymers according to one of claims 1 to 4, in which the molar ratio V^2/V^1 complies with the relationship

$$0.0005 < \text{V}^2/\text{V}^1 < 0.9.$$

6. A process for preparing the linear polyammonium-polysiloxane copolymers according to one of claims 1 to 5, in which

a) at least one amine compound selected from a diamine compound and/or a primary or secondary monoamine compound is reacted with at least two difunctional organic compounds capable of reacting with the amino functions of the amine compound, the molar ratio of the organic compounds being chosen so as to meet the condition $\text{V}^2/\text{V}^1 \neq 1$,

b) at least two moles of an amine compound selected from a diamine compound and/or a primary or secondary monoamine compound are reacted with one mole of a difunctional organic compound capable of reacting with the amino functions of the amine compound, to form a diamine compound (monomer), which is subsequently reacted with at least one amine compound selected from a diamine compound and/or a primary or secondary monoamine compound and with at least one further

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difunctional organic compound capable of reacting with the amino functions of the amine compounds,

5 c) an amine compound selected from a diamine compound and/or a primary or secondary monoamine compound is reacted with a difunctional organic compound capable of reacting with the amino functions of the amine compounds, to form a diamine compound (amino-terminated oligomer), which is subsequently reacted with at least one difunctional organic compound capable of reacting with the amino functions of the diamine compounds,

10 d) an amine compound selected from a diamine compound and/or a primary or secondary monoamine compound is reacted with a difunctional organic compound capable of reacting with the amino functions of the amine compound, to form a difunctional compound capable of reacting with amino functions (difunctional oligomer), which is subsequently reacted
15 with at least one amine compound selected from a diamine compound and/or a primary or secondary monoamine compound and with at least one further compound capable of reacting with amino functions,

it being possible if desired to add monofunctional, preferably tertiary, monoamines or suitable monoamines not capable of chain propagation,
20 and/or monofunctional compounds capable of reacting with amino functions, as chain terminators, and the stoichiometry of the amino functions and the functional groups capable of reacting with amino functions always being approximately 1:1 in the last stage of the reaction,

25 and it being possible for any amino functions present to be protonated, alkylated or quaternized.

7. The process according to claim 6, in which the functional groups of the difunctional compounds capable of reacting with amino functions are selected from the group consisting of epoxy groups and haloalkyl groups.

30 8. The use of the linear polyammonium-polysiloxane copolymers according to one of claims 1 to 5 and of the linear polyammonium-polysiloxane copolymers obtained according to claim 6 or 7 in cosmetic formulations, in laundry detergents or for surface-treating substrates.

9. The use according to claim 8 for fiber treatment and/or fiber finishing.

10. Compositions comprising at least one linear polyammonium-polysiloxane copolymer according to any one of claims 1 to 5 or at least one of the linear polyammonium-polysiloxane copolymers obtained according to one of claims 6 or 7, together with at least one further ingredient customary for the composition.

11. A composition according to claim 10, being a laundry detergent composition or a cosmetic composition.